

REMARKS

Claims 4, 11, 14, 16 and 18 are pending in this application. By this Amendment, claim 4 is amended. Support for the amendments to claim 4 can be found, for example, in Fig. 4, and at page 9, lines 18-24, of the specification, as originally filed. No new matter is added. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

The Office Action rejects claims 4, 11, 16 and 18 under 35 U.S.C. §103(a) over JP-A-2003-257385 to Murashige, in view of U.S. Patent No. 5,279,623 to Watanabe et al. (Watanabe), and in view of WO 99/25036 to Hiratsuka et al. (Hiratsuka). The Office Action also rejects claim 14 under 35 U.S.C. §103(a) over Murashige, Watanabe, Hiratsuka and further in view of U.S. Patent No. 1,424,144 to Kunkel. These rejections are respectfully traversed.

The combination of Murashige, Watanabe and Hiratsuka would not have rendered obvious a lithium ion secondary battery comprising a protruded terminal connected to one of a cathode plate and an anode plate, and protruding through only a second lower surface to an outside of a can and located between a first side wall and a second side wall and located inwardly from the second side wall toward a defined space, as recited in independent claim 4.

Murashige discloses a sealed thin lithium ion secondary battery with a two-stage step formed in the battery case and the outer terminals protruded at the two-stage step. Drawing 2 of Murashige illustrates that the external terminals 24 and 25 are exposed at the corner part formed by the short flank 21a in an L-type shape (Murashige, block [0017]). That is, the external terminals 24 and 25 of Murashige are located so as to protrude through both the surface of the short flank 21a and an adjacent opposed surface.

The Office Action asserts that the external terminals 24 and 25 of Murashige correspond to the claimed protruded terminal. The Office Action, on page 3, illustrates in an

annotated drawing, the alleged first and second side walls and the alleged first and second lower surfaces.

However, as illustrated in the annotated drawing of the Office Action, the external terminals 24 and 25 are protruded from the alleged second lower surface and the alleged second side wall. The external terminals 24 and 25 are not between the alleged first side wall and the alleged second side wall. Finally, the external terminals 24 and 25 are not positioned inwardly from the alleged second wall toward the defined space near item 23a. Rather, the external terminals are beyond the dimension of the cell.

The position of the claimed terminal is provided for allowing easy operation of welding the can and the cap. This position prevents damage or deformation due to heat generated by the welding. As such, a two-stage step is formed on a region where the protruded terminal is provided on the can. The cooling jig can then be installed and contacted to the container so that only the outer surface of the can and the outer surface of the cap are exposed to the outside. Murashige does not disclose how to prevent damage or deformation due to heat generated upon welding.

Since the claimed protruded terminal is located in only the second lower surface within the second side wall, the lithium ion secondary battery prevents an energy density/volume ratio of a cell from decreasing. If the protruded terminal is not within the second side wall, the terminal is beyond the dimension of the cell and an energy density/volume ratio of the cell may decrease. The energy density/volume ratio has an influence on the performance of the secondary battery. The external terminals 24 and 25 of Murashige are not within any feature that can reasonably be considered to correspond to the second side wall, and thus the external terminals are beyond the dimensions of the cell. As a result, an energy density/volume ratio of a cell of Murashige will decrease.


Drawing 1 of Murashige illustrates a positive pole terminal 14 and a negative pole terminal 15 only in the level flat part provided by one side of the covering 12. Murashige disparages the embodiment of drawing 1 and discloses that this configuration is inconvenient because, when the terminal of an anode and a negative electrode exposes the extensive flank side of the covering 12, the direction which pulls out an external terminal from a cell will be limited (Murashige, [0006]). For this reason, one of ordinary skill in the art would not have predictably applied the configuration of drawing 1. As a result, Murashige does not disclose an easy installation of a cooling jig and an enhancement of an energy density/volume ratio of a cell. Murashige fails to disclose the features of claim 4, and the resulting benefits.

Watanabe and Hiratsuka fail to overcome the deficiencies of Murashige as applied to independent claim 4. Thus, claim 4 is patentable over the combination of Murashige, Watanabe and Hiratsuka. Claims 11, 14, 16 and 18 depend from independent claim 4. Thus, claims 11, 14, 16 and 18 are also patentable by reason of their dependence on independent claim 4, as well as for the additional features these claims recite. Accordingly, it is respectfully requested that the rejection be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 4, 11, 14, 16 and 18 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,


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